



CONTENTS OF VOLUME 149

Vol. 149B, No. 1

Appreciation list

General papers

- | | | |
|---|-----|---|
| | I | In Appreciation |
| Y. Enoki, Y. Ohga, H. Ishidate and T. Morimoto | 11 | Primary structure of myoglobins from 31 species of birds |
| J.O. Ortiz, M. Rodríguez-Lanetty and J. Bubis | 22 | Purification and characterization of transducin from capybara <i>Hydrochoerus hydrochaeris</i> |
| S. Miura, S. Nakamura, Y. Kobayashi, F. Piferrer and M. Nakamura | 29 | Differentiation of ambisexual gonads and immunohistochemical localization of P450 cholesterol side-chain cleavage enzyme during gonadal sex differentiation in the protandrous anemonefish, <i>Amphiprion clarkii</i> |
| S. Iwai, L. Thi Dieu Trang, H. Schadova and M. Takeda | 38 | Expression analyses of casein kinase 2 α and casein kinase 2 β in the silkworm, <i>Bombyx mori</i> |
| S. Moriyama, K. Yamaguchi, T. Takasawa, H. Chiba and H. Kawauchi | 47 | Identification of two insulin-like growth factor IIs in the Japanese eel, <i>Anguilla japonica</i> : Cloning, tissue distribution, and expression after growth hormone treatment and seawater acclimation |
| Y. Han, H. Yu, X. Yang, H.H. Rees, J. Liu and R. Lai | 58 | A serine proteinase inhibitor from frog eggs with bacteriostatic activity |
| C.P. Cutler and G. Cramb | 63 | Differential expression of absorptive cation-chloride-cotransporters in the intestinal and renal tissues of the European eel (<i>Anguilla anguilla</i>) |
| L.A. Milligan, S.I. Rapoport, M.R. Cranfield, W. Dittus, K.E. Glander, O.T. Oftedal, M.L. Power, C.A. Whittier and R.P. Bazinet | 74 | Fatty acid composition of wild anthropoid primate milks |
| Z.-y. Liu, Z. Wang and J. Zhang | 83 | An acidic protease from the grass carp intestine (<i>Ctenopharyngodon idellus</i>) |
| C.Y. Choi and K.W. An | 91 | Cloning and expression of Na ⁺ /K ⁺ -ATPase and osmotic stress transcription factor 1 mRNA in black porgy, <i>Acanthopagrus schlegelii</i> during osmotic stress |
| Y. Nishiki, T. Kono, K. Fukao, K. Sato, K. Takahashi, M. Toyomizu and Y. Akiba | 101 | Nitric oxide (NO) is involved in modulation of non-insulin mediated glucose transport in chicken skeletal muscles |
| K.A. Daly, C. Lefèvre, K. Nicholas, E. Deane and P. Williamson | 108 | Characterization and expression of Peroxiredoxin 1 in the neonatal tammar wallaby (<i>Macropus eugenii</i>) |
| H. Kawasaki, S. Iwamuro, Y. Goto, P.F. Nielsen and J.M. Conlon | 120 | Characterization of a hemolytic protein, identified as histone H4, from the skin of the Japanese tree frog <i>Hyla japonica</i> (Hylidae) |

S.G. Lynn, W.J. Birge and B.S. Shepherd	126	Molecular characterization and sex-specific tissue expression of estrogen receptor α (<i>esr1</i>), estrogen receptor β (<i>esr2a</i>) and ovarian aromatase (<i>cyp19a1a</i>) in yellow perch (<i>Perca flavescens</i>)
L.E. Schaufler, J.J. Vollenweider and A. Moles	148	Changes in the lipid class and proximate compositions of coho salmon (<i>Oncorhynchus kisutch</i>) smolts infected with the nematode parasite <i>Philonema agubernaculum</i>
B. Dojnov, N. Božić, V. Nenadović, J. Ivanović and Z. Vujčić	153	Purification and properties of midgut α -amylase isolated from <i>Morimus funereus</i> (Coleoptera: Cerambycidae) larvae
Y. Niimura and K.-i. Nagai	161	Metabolic responses of sulfatide and related glycolipids in Madin-Darby canine kidney (MDCK) cells under osmotic stresses
K. Yamaura, K.G. Takahashi and T. Suzuki	168	Identification and tissue expression analysis of C-type lectin and galectin in the Pacific oyster, <i>Crassostrea gigas</i>
Q. Wang, K. Chen, Q. Yao, Y. Zhao, Y. Li, H. Shen and R. Mu	176	Identification and characterization of a novel l-Cys peroxiredoxin from silkworm, <i>Bombyx mori</i>
B.Y. Kim, H.J. Kim, K.S. Lee, S.J. Seo and B.R. Jin	183	Catalase from the white-spotted flower chafer, <i>Protaetia brevitarsis</i> : cDNA sequence, expression, and functional characterization
M. Wu, A. Chaudhary, I.A. Khan and A.K. Dasmahapatra	191	Ethanol teratogenesis in Japanese medaka: Effects at the cellular level
É. Hébert Chatelain, S. Breton, H. Lemieux and P.U. Blier	202	Epitoky in <i>Nereis (Neanthes) virens</i> (Polychaeta: Nereididae): A story about sex and death
C.E. Rosa, M.A. Figueiredo, C.F.C. Lanes, D.V. Almeida, J.M. Monserrat and L.F. Marins	209	Metabolic rate and reactive oxygen species production in different genotypes of GH-transgenic zebrafish

I Call for Papers: 6th ISFE 2008

II Call for Papers: SEB Annual Main Meeting, Marseille - 2008

Vol. 149B, No. 2

Review

B. Moussian

215 The role of GlcNAc in formation and function of extracellular matrices

General papers

N. Birukawa, H. Ando, M. Goto, N. Kanda, L.A. Pastene and A. Urano

227 Molecular cloning of urea transporters from the kidneys of baleen and toothed whales

K. Batista de Moraes, K. Fernandes Grego and A. Mitico Tanaka-Azevedo

236 Identification of proteins similar to *Bothrops jararaca* coagulation inhibitor (BjI) in the plasmas of *Bothrops alternatus*, *Bothrops jararacussu* and *Crotalus durissus terrificus* snakes

V. Ventrella, M. Pirini, A. Pagliarini, F. Trombetti, M.P. Manuzzi and A.R. Borgatti

241 Effect of temporal and geographical factors on fatty acid composition of *M. galloprovincialis* from the Adriatic sea

M. Singh, L.D. Hodges, P.F.A. Wright, D.M.Y. Cheah, P.M. Wynne, N. Kalafatis and T.A. Macrides

251 The CO₂-SFE crude lipid extract and the free fatty acid extract from *Perna canaliculus* have anti-inflammatory effects on adjuvant-induced arthritis in rats

P. Kovács, É. Páltinger and G. Csaba	259	Effect of hexamethylene bisacetamide (HMBA) on the microtubular system of <i>Tetrahymena pyriformis</i>
S.G. Dugan, X. Chen, J.G. Nickerson, C.J. Montpetit and T.W. Moon	265	Regulation of the black bullhead hepatic β -adrenoceptors
S. Feng, W. Li and H. Lin	275	Characterization and expression of the pepsinogen C gene and determination of pepsin-like enzyme activity from orange-spotted grouper (<i>Epinephelus coioides</i>)
M. Sanosaka, T. Minashima, K. Suzuki, K. Watanabe, S. Ohwada, A. Hagino, M.T. Rose, T. Yamaguchi and H. Aso	285	A combination of octanoate and oleate promotes <i>in vitro</i> differentiation of porcine intramuscular adipocytes
M. Narváez, L. Freites, M. Guevara, J. Mendoza, H. Guderley, C.J. Lodeiros and G. Salazar	293	Food availability and reproduction affects lipid and fatty acid composition of the brown mussel, <i>Perna perna</i> , raised in suspension culture
D.-M. Ma, H.-P. Zhu and J.-F. Gui	303	Ectopic <i>Six3</i> expression in the dragon eye goldfish
A. Kampkötter, C. Timpel, R.F. Zurawski, S. Ruhl, Y. Chovolou, P. Proksch and W. Wätjen	314	Increase of stress resistance and lifespan of <i>Caenorhabditis elegans</i> by quercetin
S. Shini, P. Kaiser, A. Shini and W.L. Bryden	324	Biological response of chickens (<i>Gallus gallus domesticus</i>) induced by corticosterone and a bacterial endotoxin
M. Manchado, C. Infante, E. Asensio, A. Crespo, E. Zuasti and J.P. Cañavate	334	Molecular characterization and gene expression of six trypsinogens in the flatfish Senegalese sole (<i>Solea senegalensis</i> Kaup) during larval development and in tissues
L. Zhang, D. Lin, Y. Zhang, G. Ma and W. Zhang	345	A homologue of Sox11 predominantly expressed in the ovary of the orange-spotted grouper <i>Epinephelus coioides</i>
N. Wang, Y.-H. Lee and J. Lee	354	Recombinant perlucin nucleates the growth of calcium carbonate crystals: Molecular cloning and characterization of perlucin from disk abalone, <i>Haliotis discus discus</i>
V.I. Lushchak, V.V. Husak and K.B. Storey	362	Regulation of AMP-deaminase activity from white muscle of common carp <i>Cyprinus carpio</i>
F.A. Juola, K. McGraw and D.C. Dearborn	370	Carotenoids and throat pouch coloration in the great frigatebird (<i>Fregata minor</i>)
S.-Y. Wang, Yan Tao, C.-S. Liang, H. Fukushima and S. Watabe	378	cDNA cloning and characterization of temperature-acclimation-associated light meromyosins from grass carp fast skeletal muscle
J. Chen, L. Yuan, M. Sun, L. Zhang and S. Zhang	388	Screening of hibernation-related genes in the brain of <i>Rhinolophus ferrumequinum</i> during hibernation
Y. Kitani, N. Kikuchi, G. Zhang, S. Ishizaki, K. Shimakura, K. Shiomi and Y. Nagashima	394	Antibacterial action of L-amino acid oxidase from the skin mucus of rockfish <i>Sebastes schlegelii</i>

I Call for Papers: 6th ISFE 2008

II Call for Papers: SEB Annual Main Meeting, Marseille - 2008

General papers

- N.A. Jennings, L. Pezzementi,
A.L. Lawrence and S.A. Watts
- M. Mahawar and P. Joshi
- O. Opota, J.-F. Charles, S. Warot,
D. Pauron and I. Darboux
- A. Bermejo-Nogales, L. Benedito-Palos,
A. Saera-Vila, J.A. Caldach-Giner,
A. Sitjà-Bobadilla and J. Pérez-Sánchez
- R. Hristova, A. Dolashki, W. Voelter,
S. Stevanovic and P. Dolashka-Angelova
- N. Senthil Kumar, B. Tang, X. Chen,
H. Tian and W. Zhang
- N. Božić, J. Ivanović, V. Nenadović,
J. Bergström, T. Larsson and Z. Vujčić
- D.C. McFarland and J.E. Pesall
- X. Li, T. Lei, T. Xia, X. Chen, S. Feng,
H. Chen, Z. Chen, Y. Peng and Z. Yang
- V.A. Funk, R.W. Olafson, M. Raap,
D. Smith, L. Aitken, J.D. Haddow,
D. Wang, J.A. Dawson-Coates,
R.D. Burke and K.M. Miller
- H. Guderley, D.R. Joannise, S. Mokas,
G.M. Bilodeau and T. Garland Jr.
- K. Hashimoto, Y. Yamano and
I. Morishima
- S. Maeda, A. Nakashima, R. Yamada,
N. Hara, Y. Fujimoto, Y. Ito and
H. Sonobe
- O. Mittapalli and R.H. Shukle
- K.A. Daly, M.R. Digby, C. Lefèvre,
K.R. Nicholas, E.M. Deane and
P. Williamson
- Kwang Wook An, H.S. Shin and
C.Y. Choi
- 401 Acetylcholinesterase in the sea urchin *Lytechinus variegatus*: Characterization and developmental expression in larvae
- 410 Goat vitronectin: Characterization and binding to *Staphylococcus aureus*
- 419 Identification and characterization of the receptor for the *Bacillus sphaericus* binary toxin in the malaria vector mosquito, *Anopheles gambiae*
- 428 Confinement exposure induces glucose regulated protein 75 (GRP75/mortalin/mtHsp70/PBP74/HSPA9B) in the hepatic tissue of gilthead sea bream (*Sparus aurata* L.)
- 439 *o*-Diphenol oxidase activity of molluscan hemocyanins
- 447 Molecular cloning, expression pattern and comparative analysis of chitin synthase gene B in *Spodoptera exigua*
- 454 Purification and properties of major midgut leucyl aminopeptidase of *Morimus funereus* (Coleoptera, Cerambycidae) larvae
- 463 Phospho-MAPK as a marker of myogenic satellite cell responsiveness to growth factors
- 468 Molecular characterization, chromosomal and expression patterns of three aquaglyceroporins (*AQP3*, 7, 9) from pig
- 477 Identification, characterization and deduced amino acid sequence of the dominant protease from *Kudoa paniformis* and *K. thyrsites*: A unique cytoplasmic cysteine protease
- 490 Altered fibre types in gastrocnemius muscle of high wheel-running selected mice with mini-muscle phenotypes
- 501 Induction of tyrosine hydroxylase gene expression by bacteria in the fat body of eri-silkworm, *Samia cynthia ricini*
- 507 Molecular cloning of ecdysone 20-hydroxylase and expression pattern of the enzyme during embryonic development of silkworm *Bombyx mori*
- 517 Molecular characterization and responsive expression of a defender against apoptotic cell death homologue from the Hessian fly, *Mayetiola destructor*
- 524 Identification, characterization and expression of cathelicidin in the pouch young of tammar wallaby (*Macropus eugenii*)
- 534 Physiological responses and expression of metallothionein (MT) and superoxide dismutase (SOD) mRNAs in olive flounder, *Paralichthys olivaceus* exposed to benzo[a]pyrene

Erratum

- A. Cohen, K. Klasing and R. Ricklefs
- 540 Erratum to "Measuring circulating antioxidants in wild birds" [Comp. Biochem. Physiol. 147B (2007) 110-121]

- I Call for Papers: 6th ISFE 2008
- II Call for Papers: SEB Annual Main Meeting, Marseille - 2008

Vol. 149B, No. 4

General papers

- C.-M. Kao and F.-L. Huang 541 Cloning and expression of carp cathepsin Z: Possible involvement in yolk metabolism
- P. Heredia-Middleton, J. Brunelli, R.E. Drew and G.H. Thorgaard 552 Heat shock protein (HSP70) RNA expression differs among rainbow trout (*Oncorhynchus mykiss*) clonal lines
- Z. Liu, H. Liu, X. Liu and X. Wu 557 Purification and cloning of a novel antimicrobial peptide from salivary glands of the hard tick, *Ixodes sinensis*
- T.G. Ramsay and A.D. Mitchell 562 Impact of dietary protein content on uncoupling protein mRNA abundance in swine
- M. Samel, K. Tõnismägi, G. Rönholm, H. Viija, J. Siigur, N. Kalkkinen and E. Siigur 572 L-Amino acid oxidase from *Naja naja oxiana* venom
- X. Zhang, N.B. Griko, S.K. Corona and L.A. Bulla Jr. 581 Enhanced exocytosis of the receptor BT-R₁ induced by the Cry1Ab toxin of *Bacillus thuringiensis* directly correlates to the execution of cell death
- B.J. Kang, T. Nanri, J.M. Lee, H. Saito, C.-H. Han, M. Hatakeyama and M. Saigusa 589 Vitellogenesis in both sexes of gonochoristic mud shrimp, *Upogebia major* (Crustacea): Analyses of vitellogenin gene expression and vitellogenin processing
- M.C.L. Nascimento-Silva, A.T. Leal, S. Daffre, L. Juliano, I. da Silva Vaz Jr., G. de O. Paiva-Silva, P.L. Oliveira and M.H.F. Sorgine 599 BYC, an atypical aspartic endopeptidase from *Rhipicephalus (Boophilus) microplus* eggs
- X. Lu, Y. Ma, J. Wu and R. Lai 608 Two serine protease inhibitors from the skin secretions of the toad, *Bombina microdeladigitata*
- P. Soppela, S. Saarela, U. Heiskari and M. Nieminen 613 The effects of wintertime undernutrition on plasma leptin and insulin levels in an arctic ruminant, the reindeer
- E.C.C. Silva, D.C. Masui, R.P.M. Furriel, F.L.M. Mantelatto, J.C. McNamara, H. Barrabin, F.A. Leone, H.M. Scofano and C.F.L. Fontes 622 Regulation by the exogenous polyamine spermidine of Na,K-ATPase activity from the gills of the euryhaline swimming crab *Callinectes danae* (Brachyura, Portunidae)
- M. De Zoysa, W.A. Pushpamali, I. Whang, S.J. Kim and J. Lee 630 Mitochondrial thioredoxin-2 from disk abalone (*Haliotis discus discus*): Molecular characterization, tissue expression and DNA protection activity of its recombinant protein
- O. Wellman-Labadie, J. Picman and M.T. Hincke 640 Antimicrobial activity of the Anseriform outer eggshell and cuticle
- I Contents of Volume 149
- VI Subject Index
- IX Author Index

General papers

- N.A. Jennings, L. Pezzementi, A.L. Lawrence and S.A. Watts 401 Acetylcholinesterase in the sea urchin *Lytechinus variegatus*: Characterization and developmental expression in larvae
- M. Mahawar and P. Joshi 410 Goat vitronectin: Characterization and binding to *Staphylococcus aureus*
- O. Opota, J.-F. Charles, S. Warot, D. Pauron and I. Darboux 419 Identification and characterization of the receptor for the *Bacillus sphaericus* binary toxin in the malaria vector mosquito, *Anopheles gambiae*
- A. Bermejo-Nogales, L. Benedito-Palos, A. Saera-Vila, J.A. Calduch-Giner, A. Sitjà-Bobadilla and J. Pérez-Sánchez 428 Confinement exposure induces glucose regulated protein 75 (GRP75/mortalin/mHsp70/PBP74/HSPA9B) in the hepatic tissue of gilthead sea bream (*Sparus aurata* L.)
- R. Hristova, A. Dolashki, W. Voelter, S. Stevanovic and P. Dolashka-Angelova 439 *o*-Diphenol oxidase activity of molluscan hemocyanins
- N. Senthil Kumar, B. Tang, X. Chen, H. Tian and W. Zhang 447 Molecular cloning, expression pattern and comparative analysis of chitin synthase gene B in *Spodoptera exigua*
- N. Božić, J. Ivanović, V. Nenadović, J. Bergström, T. Larsson and Z. Vujčić 454 Purification and properties of major midgut leucyl aminopeptidase of *Morimus funereus* (Coleoptera, Cerambycidae) larvae
- D.C. McFarland and J.E. Pesall 463 Phospho-MAPK as a marker of myogenic satellite cell responsiveness to growth factors
- X. Li, T. Lei, T. Xia, X. Chen, S. Feng, H. Chen, Z. Chen, Y. Peng and Z. Yang 468 Molecular characterization, chromosomal and expression patterns of three aquaglyceroporins (*AQP3*, 7, 9) from pig
- V.A. Funk, R.W. Olafson, M. Raap, D. Smith, L. Aitken, J.D. Haddow, D. Wang, J.A. Dawson-Coates, R.D. Burke and K.M. Miller 477 Identification, characterization and deduced amino acid sequence of the dominant protease from *Kudoa paniformis* and *K. thyrsites*: A unique cytoplasmic cysteine protease
- H. Guderley, D.R. Joanisse, S. Mokas, G.M. Bilodeau and T. Garland Jr. 490 Altered fibre types in gastrocnemius muscle of high wheel-running selected mice with mini-muscle phenotypes
- K. Hashimoto, Y. Yamano and I. Morishima 501 Induction of tyrosine hydroxylase gene expression by bacteria in the fat body of eri-silkworm, *Samia cynthia ricini*
- S. Maeda, A. Nakashima, R. Yamada, N. Hara, Y. Fujimoto, Y. Ito and H. Sonobe 507 Molecular cloning of ecdysone 20-hydroxylase and expression pattern of the enzyme during embryonic development of silkworm *Bombyx mori*
- O. Mittapalli and R.H. Shukle 517 Molecular characterization and responsive expression of a defender against apoptotic cell death homologue from the Hessian fly, *Mayetiola destructor*
- K.A. Daly, M.R. Digby, C. Lefèvre, K.R. Nicholas, E.M. Deane and P. Williamson 524 Identification, characterization and expression of cathelicidin in the pouch young of tammar wallaby (*Macropus eugenii*)
- Kwang Wook An, H.S. Shin and C.Y. Choi 534 Physiological responses and expression of metallothionein (MT) and superoxide dismutase (SOD) mRNAs in olive flounder, *Paralichthys olivaceus* exposed to benzo[a]pyrene
- Erratum
- A. Cohen, K. Klasing and R. Ricklefs 540 Erratum to "Measuring circulating antioxidants in wild birds" [Comp. Biochem. Physiol. 147B (2007) 110–121]

- I Call for Papers: 6th ISFE 2008
- II Call for Papers: SEB Annual Main Meeting, Marseille - 2008

Vol. 149B, No. 4

General papers

- C.-M. Kao and F.-L. Huang 541 Cloning and expression of carp cathepsin Z: Possible involvement in yolk metabolism
- P. Heredia-Middleton, J. Brunelli, R.E. Drew and G.H. Thorgaard 552 Heat shock protein (HSP70) RNA expression differs among rainbow trout (*Oncorhynchus mykiss*) clonal lines
- Z. Liu, H. Liu, X. Liu and X. Wu 557 Purification and cloning of a novel antimicrobial peptide from salivary glands of the hard tick, *Ixodes sinensis*
- T.G. Ramsay and A.D. Mitchell 562 Impact of dietary protein content on uncoupling protein mRNA abundance in swine
- M. Samel, K. Tönismägi, G. Rönholm, H. Vija, J. Siigur, N. Kalkkinen and E. Siigur 572 L-Amino acid oxidase from *Naja naja oxiana* venom
- X. Zhang, N.B. Griko, S.K. Corona and L.A. Bulla Jr. 581 Enhanced exocytosis of the receptor BT-R₁ induced by the CryIAb toxin of *Bacillus thuringiensis* directly correlates to the execution of cell death
- B.J. Kang, T. Nanri, J.M. Lee, H. Saito, C.-H. Han, M. Hatakeyama and M. Saigusa 589 Vitellogenesis in both sexes of gonochoristic mud shrimp, *Upogebia major* (Crustacea): Analyses of vitellogenin gene expression and vitellogenin processing
- M.C.L. Nascimento-Silva, A.T. Leal, S. Daffre, L. Juliano, I. da Silva Vaz Jr., G. de O. Paiva-Silva, P.L. Oliveira and M.H.F. Sorgine 599 BYC, an atypical aspartic endopeptidase from *Rhipicephalus (Boophilus) microplus* eggs
- X. Lu, Y. Ma, J. Wu and R. Lai 608 Two serine protease inhibitors from the skin secretions of the toad, *Bombina microdeladigitata*
- P. Soppela, S. Saarela, U. Heiskari and M. Nieminen 613 The effects of wintertime undernutrition on plasma leptin and insulin levels in an arctic ruminant, the reindeer
- E.C.C. Silva, D.C. Masui, R.P.M. Furriel, F.L.M. Mantelatto, J.C. McNamara, H. Barrabin, F.A. Leone, H.M. Scofano and C.F.L. Fontes 622 Regulation by the exogenous polyamine spermidine of Na,K-ATPase activity from the gills of the euryhaline swimming crab *Callinectes danae* (Brachyura, Portunidae)
- M. De Zoysa, W.A. Pushpamali, I. Whang, S.J. Kim and J. Lee 630 Mitochondrial thioredoxin-2 from disk abalone (*Haliotis discus discus*): Molecular characterization, tissue expression and DNA protection activity of its recombinant protein
- O. Wellman-Labadie, J. Picman and M.T. Hincke 640 Antimicrobial activity of the Anseriform outer eggshell and cuticle

I Contents of Volume 149

VI Subject Index

IX Author Index

SUBJECT INDEX

Vol. 149B, Nos. 1-4

- Abalone, 354, 630
 Acetylated tubulin, 259
 Acetylcholine, 401
 Acetylcholinesterase, 401
 Acidic protease, 83
 Adipocyte, 285
 Adipogenesis, 285
 Adjuvant arthritis, 251
 β -adrenoceptor, 265
 Adriatic sea, 241
 Aerobic capacity, 490
 Alcohol, 191
 Ambisexual gonads, 29
 Amino acid, 11
 L-Amino acid oxidase, 572
 AMP-deaminase, 362
 Amphibian, 58, 608
 Anemonefish, 29
Anopheles gambiae, 419
 Anthropoid, 74
 Anti-inflammatory, 251
 Antibacterial action, 394
 Antibacterial activity, 572
 Antibacterial protein, 394
 Antimicrobial, 120, 640
 Antimicrobial peptides, 524
 Antioxidant, 176, 630
 Antioxidant enzyme, 183
 aP2, 285
AQP3, 468
AQP7, 468
AQP9, 468
 Aquaglyceroporin, 468
 Arctic, 613
 Artificial selection, 490
 Aspartic endopeptidases, 599
 Astaxanthin, 370

Bacillus sphaericus, 419
Bacillus thuringiensis, 581
 Bacterial cell binding activity, 394
 Benzo[a]pyrene, 534
 Binary toxin, 419
 Biopesticide, 419
 Bird, 11
 Bivalves, 293
 Black porgy, 91
 Blood coagulation, 236
 Body weight, 613
Bombina microdeladigitata, 608
Bombyx mori, 38, 176, 507
Bothrops jararaca, 236

 BT-R₁, 581
 Bumetanide, 63

 C/EBP α , 285
 C-type lectin, 168
 Cadherin, 581
Caenorhabditis elegans, 314
 Calcium carbonate crystals, 354
Callinectes danae, 622
 Capybaras, 22
 Carotenoid pigments, 370
 Carp, 541
casein kinase 2 α , 38
casein kinase 2 β , 38
 Catalase, 183
 Catalytic mechanism, 599
 Catecholamines, 265
 Cathelicidin, 524
 Cathepsin L protease, 477
 Cathepsin Z, 541
 Cation-chloride cotransporter, 63
 cDNA, 447
 cDNA cloning, 47, 378
 cDNA subtraction, 388
 Cell death, 581
 Cerambycid beetle, 153, 454
 Ceramide, 161
 Cerebroside sulfotransferase gene, 161
 Cetaceans, 227
 Chicken, 101
 Chickens, 324
 Chitin synthase gene B, 447
 Circadian clock, 38
 Cloning, 126, 227, 447, 468
 Color signals, 370
 Cortical granule, 541
 Corticosterone, 324
Crassostrea gigas, 168
 Crotalinae, 236
 Cry toxin, 581
 Cuticle, 640
Cyprinus carpio, 362
 l-Cys peroxiredoxins (l-Cys Prx), 176
 Cytochrome P450, 507
 Cytoskeleton, 259

 DAF-16 lifespan, 314
 Defender against apoptotic death (DAD1), 517
 Defensive, 58
 Deoxy-glucose uptake, 101
 Development, 191, 275

 Diapause, 38
 Digestive gland, 168
 o-Diphenoloxidase activity, 439
 Diuretics, 63
 DNA, 191
Drosophila, 215

 Ecdysone 20-hydroxylase, 507
 Ecdysteroid-phosphate phosphatase (EPPase), 507
 Egg, 58
 Eggshell, 640
 Electron microscopy, 394
 Embryogenesis, 345
 Embryonic myoblast, 463
 Environmental parameters, 293
Epinephelus coioides, 275, 345
 Epitoky, 202
 Eri-silkworm, 501
 Euryhaline swimming crab, 622
 Exercise physiology, 490
 Exocytosis, 581
 Experimental evolution, 490
 Expression, 447
 Expression pattern, 468
 Extracellular matrix, 215
 Extract, 83
 Eye development, 303

 Fast skeletal muscle, 378
 Fatty acid, 74
 Fatty acids, 241, 293
 Feed intake, 613
 Fertilization envelope, 541
 Fish, 126, 265, 428
 Fish clonal lines, 552
 Flutax-1, 259
 Free fatty acids, 148
 Frog skin, 120

 G-protein-coupled signaling, 22
 Galectin, 168
 Gene expression, 334, 589
 Genomic DNA, 447
 Gill microsomes, 622
 GlcNAc, 215
 Glucose transport, 101
 Glucosyl ceramide sulfate, 161
 Glutamate-cysteine ligase catalytic subunit, 209
 Glycobiology, 215
 Glycolipid, 161

- Glycosyltransferase, 215
 Goldfish (*C. auratus*), 303
 Grass carp, 83, 378
 Growth, 47
 Growth factors, 463
 Growth hormone, 47, 209

Haliotis discus discus, 354
 Heat shock proteins, 428
 Heat shock response, 552
Helix vulgaris hemocyanin, 439
 Hemolytic, 120
 Hessian fly, 517
 Hibernation, 388
 Histone H4, 120
 HMBA, 259
 Homeobox, 303
 Hormone, 126
 HPLC, 370
 HSP70, 552
 Human disease, 215
Hydrochoerus hydrochaeris, 22
 Hydrogen peroxide, 183, 394
 Hydropathy profile, 11
 Hydrophilicity, 378
Hyla japonica, 120
 Hypoosmotic stress, 91

 Immune response, 324
 Immunofluorescence localization, 303
 Immunohistochemistry, 29
 In situ hybridization, 168
 Induction of gene expression, 501
 Insect, 183
 Insect immunity, 501
 Insulin, 101, 613
 Insulin-like growth factor-II, 47
 Intestine, 83
 Intramuscular preadipocyte, 285
 Isoform, 153, 454

 Japanese eel, 47
 Japanese medaka, 191

K. paniformis, 477
 Kidney, 227
 kinetic constants, 439
 Kinetics, 362
Kudoa thyrsites, 477

 L-Amino acid oxidase, 394
 Larvae, 401
 Larval development, 334
 Leptin, 613
 Leucyl aminopeptidase, 454
 Lipid class, 148
 Lipid metabolism, 562
 Lipids, 293
 Lipopolysaccharide (LPS), 324
 Liver, 265
Lytechinus variegatus, 401

 Mammal, 11
 MAPK, 463
 Mapping, 468
 Marsupial, 108
 Marsupials, 524
 MDCK cell, 161
 Melanization, 501
 L-meromyosin, 378
 Metabolism, 202
 Metallothionein, 534
 17 α -methyltestosterone, 345
 Midgut, 447, 454
 Midgut α -amylase, 153
 Milk composition, 74
 Mitochondria, 630
 Monohexosyl ceramides, 161
Morimus funereus, 153, 454
 mRNA expression, 47, 63, 345, 507, 517, 552
 Mud shrimp, 589
 Multimerization, 410
 Muscle, 463
 Muscle metabolic capacities, 490
 Myoglobin, 11
 Myoliquefaction, 477
 Myosin, 378
Mytilus galloprovincialis, 241
 Myxosporean, 477

 n-3/n-6 ratio, 241
 n-3 PUFA, 241
 Na⁺/K⁺-ATPase, 91
 Na,K-ATPase, 622
Naja naja oxiana, 572
 NCC (Sodium chloride cotransporter), 63
 Neonate, 108, 524
Nereis virens, 202
 Nitric oxide, 101
 NKCC (Sodium potassium chloride cotransporter), 63
 Nutrition, 401

 Octanoate, 285
 Oleate, 285
 Olive flounder, 534
Oncorhynchus mykiss, 552
 Oocyte maturation, 541
 Orange-spotted grouper, 345
 Osmoregulation, 91, 227
 Osmotic stress, 161
 Osmotic stress transcription factor 1, 91
 Outer nuclear layer, 303
 Ovarian part of testis, 589
 Ovary, 345
 Oxidative stress, 176, 183, 202, 534, 630
 Oxygen consumption, 209
 Oyster, 168

 Pacific salmon, 148
 Paralogs, 334
 Parasite, 148

 Partial sequencing, 572
 Pepsin-like enzymes activity, 275
 Pepsinogen C, 275
 Perlucin, 354
Perna canaliculus, 251
Perna perna, 293
 Peroxiredoxin 1, 108
 pH regulation, 477
 Phenoloxidase, 501
 Phospholipids, 148
 Photoperiod clock, 38
 Phylogenetic tree, 126
 Plankton, 241
 Plasma, 236
 Plasma metabolites, 324
 Platelet aggregation, 572
 Polyamines, 622
 Polychaete, 202
 Porcine, 285
 PPAR α , 562
 PPAR γ , 562
 PPARgamma, 285
 Primary structure, 11
 Primate, 74
 Processing, 589
 Proenzyme, 477
 Promoter, 468
Protoetia brevitaris, 183
 Protandry, 29
 Protein, 11, 191, 640
 ω -3 PUFA, 251
 Purification, 83, 362

 Quantitative RT-PCR, 334
 Quercetin, 314

 RACE (Rapid amplification of cDNA ends), 63
Rana grahami, 58
Rapana venosa hemocyanin, 439
 Reactive oxygen species, 209
 Reactive oxygen species (ROS), 183
 Real-time PCR, 552
 Receptor, 419
 Recombinant fragments, 410
 Redox homeostasis, 428
 Regulation, 265
 Reindeer, 613
 Reproduction, 293
 Reptile, 11
 Reverse transcriptase-polymerase chain reaction, 63
Rhinolophus ferrumequinum, 388
Rhipicephalus microplus, 599
 Rhodopsin, 22
 Ribonucleic acid, 63
 RNA, 191
 Rockfish *Sebastes schlegelii*, 394
 Rodent, 22
 ROS, 630
 Ruminant, 613

Subject Index

- S. aureus* binding site, 410
- Samia cynthia ricini*, 501
- Satellite cell, 463
- Sea urchin, 401
- Season, 613
- Seawater acclimation, 47
- Senegalese sole, 334
- Serine protease inhibitor, 608
- Serine proteinase inhibitor, 58
- Sex change, 345
- Sex differentiation, 29
- Sexual selection, 370
- Signal transduction, 581
- Silkworm, 507
- Six3* gene, 303
- Skeletal muscle, 101
- Snake, 236
- Snake venom, 572
- SOD-3, 314
- Southern blot, 447
- Sox11*, 345
- Spodoptera exigua*, 447
- Stem-loop structure, 120
- Steroid, 126
- Steroidogenic enzyme, 29
- Stress, 265, 324, 428
- Stress resistance, 314
- Sulfatide, 161
- Sulfoglycolipid, 161
- Superoxide dismutase, 534
- Tetrahymena*, 259
- Thermal stress, 552
- Thiazide, 63
- Thiol-dependent peroxidase activity, 176
- Thioredoxin-2, 630
- Thrombin inhibitor, 236
- Ticks, 557
- Tissue distribution, 47
- Toad, 608
- Transcription factors, 191
- Transcripts, 275
- Transducin, 22
- Transgenic zebrafish, 209
- Trypsinogen, 334
- α -Tubulin, 259
- Turkey, 463
- Tyrosine hydroxylase, 501
- UCP2, 562
- UCP3, 562
- UDP-GlcNAc, 215
- Upogebia major*, 589
- Uptake, 314
- Urea, 227
- Urea transporter, 227
- Viperidae, 236
- Visual process, 22
- Vitellin, 589
- Vitellin degradation, 599
- Vitellogenin, 541, 589
- Vitronectin, 410
- Waterfowl, 640
- White-spotted flower chafer, 183
- Xylophagous larvae, 153, 454
- Yolk proteins, 589

AUTHOR INDEX

Vol. 149B, Nos. 1-4

- Aitken, L., 477
Akiba, Y., 101
Almeida, D.V., 209
An, K.W., 91
Ando, H., 227
Asensio, E., 334
Aso, H., 285
- Barrabin, H., 622
Batista de Moraes, K., 236
Bazin, R.P., 74
Benedito-Palos, L., 428
Bergström, J., 454
Bermejo-Nogales, A., 428
Bilodeau, G.M., 490
Birge, W.J., 126
Birukawa, N., 227
Blair, P.U., 202
Borgatti, A.R., 241
Božić, N., 153, 454
Breton, S., 202
Brunelli, J., 552
Bryden, W.L., 324
Bubis, J., 22
Bulla Jr., L.A., 581
Burke, R.D., 477
- Calduch-Giner, J.A., 428
Cañavate, J.P., 334
Charles, J.-F., 419
Chaudhary, A., 191
Cheah, D.M.Y., 251
Chen, H., 468
Chen, J., 388
Chen, K., 176
Chen, X., 265, 447, 468
Chen, Z., 468
Chiba, H., 47
Choi, C.Y., 91, 534
Chovolou, Y., 314
Cohen, A., 540
Conlon, J.M., 120
Corona, S.K., 581
Cramb, G., 63
Cranfield, M.R., 74
Crespo, A., 334
Csaba, G., 259
Cutler, C.P., 63
- da Silva Vaz Jr., I., 599
Daffre, S., 599
Daly, K.A., 108, 524
- Darboux, I., 419
Dasmahapatra, A.K., 191
Dawson-Coates, J.A., 477
De Zoysa, M., 630
Deane, E., 108
Deane, E.M., 524
Dearborn, D.C., 370
Digby, M.R., 524
Dittus, W., 74
Dojnov, B., 153
Dolashka-Angelova, P., 439
Dolashki, A., 439
Drew, R.E., 552
Dugan, S.G., 265
- Enoki, Y., 11
- Feng, S., 275, 468
Fernandes Grego, K., 236
Figueiredo, M.A., 209
Fontes, C.F.L., 622
Freites, L., 293
Fujimoto, Y., 507
Fukao, K., 101
Fukushima, H., 378
Funk, V.A., 477
Furriel, R.P.M., 622
- Garland Jr., T., 490
Glander, K.E., 74
Goto, M., 227
Goto, Y., 120
Griko, N.B., 581
Guderley, H., 293, 490
Guevara, M., 293
Gui, J.-F., 303
- Haddow, J.D., 477
Hagino, A., 285
Han, C.-H., 589
Han, Y., 58
Hara, N., 507
Hashimoto, K., 501
Hatakeyama, M., 589
Hébert Chatelain, É., 202
Heiskari, U., 613
Heredia-Middleton, P., 552
Hincke, M.T., 640
Hodges, L.D., 251
Hristova, R., 439
Huang, F.-L., 541
Husak, V.V., 362
- Infante, C., 334
Ishidate, H., 11
Ishizaki, S., 394
Ito, Y., 507
Ivanović, J., 153, 454
Iwai, S., 38
Iwamuro, S., 120
- Jennings, N.A., 401
Jin, B.R., 183
Joannis, D.R., 490
Joshi, P., 410
Juliano, L., 599
Juola, F.A., 370
- Kaiser, P., 324
Kalafatis, N., 251
Kalkkinen, N., 572
Kampkötter, A., 314
Kanda, N., 227
Kang, B.J., 589
Kao, C.-M., 541
Kawasaki, H., 120
Kawauchi, H., 47
Khan, I.A., 191
Kikuchi, N., 394
Kim, B.Y., 183
Kim, H.J., 183
Kim, S.J., 630
Kitani, Y., 394
Klasing, K., 540
Kobayashi, Y., 29
Kono, T., 101
Kovács, P., 259
Kwang Wook An, 534
- Lai, R., 58, 608
Lanes, C.F.C., 209
Larsson, T., 454
Lawrence, A.L., 401
Leal, A.T., 599
Lee, J., 354, 630
Lee, J.M., 589
Lee, K.S., 183
Lee, Y.-H., 354
Lefèvre, C., 108, 524
Lei, T., 468
Lemieux, H., 202
Leone, F.A., 622
Li, W., 275
Li, X., 468
Li, Y., 176

Author Index

- Liang, C.-S., 378
 Lin, D., 345
 Lin, H., 275
 Liu, J., 58
 Liu, H., 557
 Liu, X., 557
 Liu, Z., 557
 Liu, Z.-y., 83
 Lodeiros, C.J., 293
 Lu, X., 608
 Lushchak, V.I., 362
 Lynn, S.G., 126
- Ma, D.-M., 303
 Ma, G., 345
 Ma, Y., 608
 Macrides, T.A., 251
 Maeda, S., 507
 Mahawar, M., 410
 Manchado, M., 334
 Mantelatto, F.L.M., 622
 Manuzzi, M.P., 241
 Marins, L.F., 209
 Masui, D.C., 622
 McFarland, D.C., 463
 McGraw, K., 370
 McNamara, J.C., 622
 Mendoza, J., 293
 Miller, K.M., 477
 Milligan, L.A., 74
 Minashima, T., 285
 Mitchell, A.D., 562
 Mitico Tanaka-Azevedo, A., 236
 Mittapalli, O., 517
 Miura, S., 29
 Mokas, S., 490
 Moles, A., 148
 Monserrat, J.M., 209
 Montpetit, C.J., 265
 Moon, T.W., 265
 Morimoto, T., 11
 Morishima, I., 501
 Moriyama, S., 47
 Moussian, B., 215
 Mu, R., 176
- Nagai, K.-i., 161
 Nagashima, Y., 394
 Nakamura, M., 29
 Nakamura, S., 29
 Nakashima, A., 507
 Nanri, T., 589
 Narváez, M., 293
 Nascimento-Silva, M.C.L., 599
 Nenadović, V., 153, 454
 Nicholas, K., 108
 Nicholas, K.R., 524
 Nickerson, J.G., 265
 Nielsen, P.F., 120
 Nieminen, M., 613
- Niimura, Y., 161
 Nishiki, Y., 101
- Oftedal, O.T., 74
 Ohga, Y., 11
 Ohwada, S., 285
 Olafson, R.W., 477
 Oliveira, P.L., 599
 Opota, O., 419
 Ortiz, J.O., 22
- Pagliarani, A., 241
 Paiva-Silva, G. de O., 599
 Pállinger, É., 259
 Pastene, L.A., 227
 Pauron, D., 419
 Peng, Y., 468
 Pérez-Sánchez, J., 428
 Pesall, J.E., 463
 Pezzementi, L., 401
 Picman, J., 640
 Piferrer, F., 29
 Pirini, M., 241
 Power, M.L., 74
 Proksch, P., 314
 Pushpamali, W.A., 630
- Raap, M., 477
 Ramsay, T.G., 562
 Rapoport, S.I., 74
 Rees, H.H., 58
 Ricklefs, R., 540
 Rodriguez-Lanetty, M., 22
 Rönnholm, G., 572
 Rosa, C.E., 209
 Rose, M.T., 285
 Ruhl, S., 314
- Saarela, S., 613
 Saera-Vila, A., 428
 Saigusa, M., 589
 Saito, H., 589
 Salazar, G., 293
 Samel, M., 572
 Sanosaka, M., 285
 Sato, K., 101
 Schautler, L.E., 148
 Scofano, H.M., 622
 Sehadova, H., 38
 Senthil Kumar, N., 447
 Seo, S.J., 183
 Shen, H., 176
 Shepherd, B.S., 126
 Shimakura, K., 394
 Shin, H.S., 534
 Shini, A., 324
 Shini, S., 324
 Shiomi, K., 394
 Shukle, R.H., 517
 Siigur, E., 572
 Siigur, J., 572
- Silva, E.C.C., 622
 Singh, M., 251
 Sitjá-Bobadilla, A., 428
 Smith, D., 477
 Sonobe, H., 507
 Soppela, P., 613
 Sorgine, M.H.F., 599
 Stevanovic, S., 439
 Storey, K.B., 362
 Sun, M., 388
 Suzuki, K., 285
 Suzuki, T., 168
- Takahashi, K., 101
 Takahashi, K.G., 168
 Takasawa, T., 47
 Takeda, M., 38
 Tang, B., 447
 Thi Dieu Trang, L., 38
 Thorgaard, G.H., 552
 Tian, H., 447
 Timpel, C., 314
 Tõnismägi, K., 572
 Toyomizu, M., 101
 Trombetti, F., 241
- Urano, A., 227
- Ventrella, V., 241
 Vija, H., 572
 Voelter, W., 439
 Vollenweider, J.J., 148
 Vujčić, Z., 153, 454
- Wang, D., 477
 Wang, N., 354
 Wang, Q., 176
 Wang, S.-Y., 378
 Wang, Z., 83
 Warot, S., 419
 Watabe, S., 378
 Watanabe, K., 285
 Wätjen, W., 314
 Watts, S.A., 401
 Wellman-Labadie, O., 640
 Whang, I., 630
 Whittier, C.A., 74
 Williamson, P., 108, 524
 Wright, P.F.A., 251
 Wu, J., 608
 Wu, M., 191
 Wu, X., 557
 Wynne, P.M., 251
- Xia, T., 468
- Yamada, R., 507
 Yamaguchi, K., 47
 Yamaguchi, T., 285
 Yamano, Y., 501
 Yamaura, K., 168

Yan Tao, 378
 Yang, X., 58
 Yang, Z., 468
 Yao, Q., 176
 Yu, H., 58
 Yuan, L., 388

Zhang, G., 394
 Zhang, J., 83
 Zhang, L., 345, 388
 Zhang, S., 388
 Zhang, W., 345, 447
 Zhang, X., 581

Zhang, Y., 345
 Zhao, Y., 176
 Zhu, H.-P., 303
 Zuasti, E., 334
 Zurawski, R.F., 314



